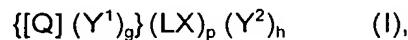


Patent claims:

1. A conjugate comprising a hyperbranched polymer covalently bonded to at least three UV absorbing chromophores having an UV absorption maximum  $\lambda_{\max} \geq 270$  nm.
2. The conjugate according to claim 1, characterized in that the hyperbranched polymer exhibits an average degree of branching  $\geq 25\%$ .
3. The conjugate according to any of the preceding claims, characterized in that the hyperbranched polymer has an average molecular weight  $M_w$  within the range of from 500 to 50,000 g mol<sup>-1</sup>.
4. The conjugate according to any of the preceding claims, characterized in that the hyperbranched polymer comprises an average number of 2 to 600 dendritic building blocks.
5. The conjugate according to any of the preceding claims, characterized in that it comprises a structure represented by general formula (I)



wherein

$Y^1$  and  $Y^2$  independently represent UV absorbing chromophores;

$\{[Q] (Y^1)_g\}$  represents the hyperbranched polymer covalently bonded to  $g$  UV absorbing chromophores  $Y^1$ ;

$(LX)_p$  represents  $p$  linker units  $LX$ , wherein independently the distal end of each linker unit  $LX$  bears a functional group  $X$  either being

- covalently bonded to an UV absorbing chromophore  $Y^2$ , or
- covalently bonded to a capping group, or
- in its free reactive form,

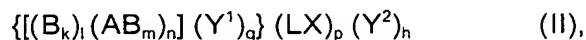
and wherein the proximal end of each linker unit  $LX$  is covalently bonded to the hyperbranched polymer; and

wherein

index g is an integer, wherein  $0 \leq g \leq 100$ ;  
 index h is an integer, wherein  $0 \leq h \leq p$ ; and

index p is an integer, wherein  $0 \leq p \leq 100$ ;  
 with the proviso that  $g + h \geq 3$ .

6. The conjugate according to claim 5, characterized in that it comprises a structure represented by general formula (II)



wherein

$Y^1$  and  $Y^2$  are defined as in claim 5;

$LX$  is defined as in claim 5;

$B_k$  represents a starter unit bearing k functional groups B, wherein independently each functional group B is

- covalently bonded to a functional group A of a building block  $AB_m$ , or
- covalently bonded to the proximal end of a linker unit  $LX$ , or
- covalently bonded to an UV absorbing chromophore  $Y^1$ , or
- covalently bonded to a capping group, or
- in its free reactive form;

$(AB_m)_n$  represents n building blocks  $AB_m$ , each bearing a functional group A and m independent functional groups B, wherein independently each functional group A is

- covalently bonded to a functional group B
  - of a further building block  $AB_m$  or
  - of the starter unit  $B_k$ , or
- covalently bonded to a capping group, or
- in its free reactive form,

and wherein independently each functional group B is

- covalently bonded to a functional group A of a further building block  $AB_m$ , or
- covalently bonded to the proximal end of a linker unit  $LX$ , or
- covalently bonded to an UV absorbing chromophore  $Y^1$ , or

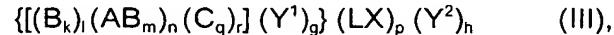
- covalently bonded to a capping group, or
- in its free reactive form;

wherein

index g is defined as in claim 5;  
 index h is defined as in claim 5;  
 index k is an integer of from 1 to 6;  
 index l is 0 or 1;  
 index m is an integer of from 2 to 4;  
 index n is an integer of from 3 to 100; and  
 index p is an integer wherein  $0 \leq p \leq n(m-1)+k$ .

7. The conjugate according to claim 6, characterized in that index l is 1, the starting unit  $B_k$  is trimethylolpropane and the building block  $AB_m$  is glycidol.

8. The conjugate according to claim 5, characterized in that it comprises a structure represented by general formula (III)



wherein

$Y^1$  and  $Y^2$  are defined as in claim 5;  
 $LX$  is defined as in claim 5;  
 $B_k$  represents a starter unit bearing k functional groups B, wherein independently each functional group B is

- covalently bonded to a functional group C
  - of a monomer  $C_2$  or
  - of a building block  $C_q$  or
- covalently bonded to the proximal end of a linker unit LX, or
- covalently bonded to an UV absorbing chromophore  $Y^1$ , or
- covalently bonded to a capping group, or
- in its free reactive form;

$(AB_m)_n$  represents n building blocks  $AB_m$ , each bearing a functional group A and m independent functional groups B, wherein independently each functional group A is

- covalently bonded to a functional group C

- of a monomer  $C_2$  or
- of a building block  $C_q$ , or
- covalently bonded to the proximal end of a linker unit LX, or
- covalently bonded to an UV absorbing chromophore  $Y^1$ , or
- covalently bonded to a capping group, or
- in its free reactive form;

and wherein independently each functional group B is

- covalently bonded to a functional group C
- of a monomer  $C_2$  or
- of a building block  $C_q$ , or
- covalently bonded to the proximal end of a linker unit LX, or
- covalently bonded to an UV absorbing chromophore  $Y^1$ , or
- covalently bonded to a capping group, or
- in its free reactive form;

$(C_q)_r$  represents

- when index  $q = 2$ : r monomers  $C_2$  or
- when index  $q > 2$ : r building blocks  $C_q$   
each bearing  $q$  functional groups C, wherein independently each functional group C is
  - covalently bonded to a functional group A of a building block  $AB_m$ , or
  - covalently bonded to a functional group B
    - of a building block  $AB_m$  or
    - of the starter unit  $B_k$ , or
  - covalently bonded to the proximal end of a linker unit LX, or
  - covalently bonded to an UV absorbing chromophore  $Y^1$ , or
  - covalently bonded to a capping group, or
  - in its free reactive form;

wherein

index g is defined as in claim 5;

index h is defined as in claim 5;

index k is an integer of from 1 to 6;

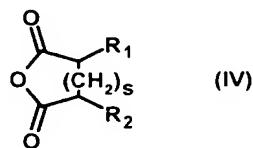
index l is 0 or 1;

index m is an integer of from 2 to 4;

index n is an integer of from 3 to 100;

index p is an integer wherein  $0 \leq p \leq n(m-1) + r(q-1) + k$ ;  
 index q is an integer of from 2 to 4; and  
 index r is an integer wherein  $1 \leq r \leq nm/q$ .

9. The conjugate according to claim 8, characterized in that index l is 0, index q is 2, building block  $AB_m$  is diisopropanolamine and monomer  $C_2$  is a compound represented by general formula (IV)



wherein

index s is 0, 1 or 2;

$R^1$  and  $R^2$  are independently H, linear or branched  $C_1-C_{18}$ -alkyl or  $C_2-C_{18}$ -alkenyl, or

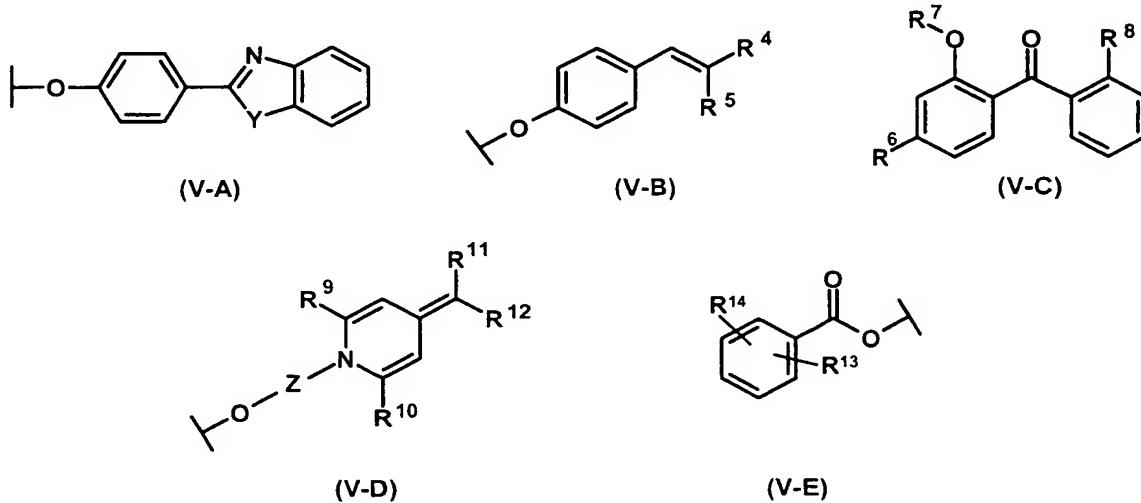
$R^1$  and  $R^2$  together with the carbon atoms to which they are attached form a 4 to 7 membered aliphatic or aromatic ring.

10. The conjugate according to any of claims 5 to 9, characterized in that the linker unit LX comprises polyethyleneoxide or polypropyleneoxide.

11. The conjugate according to any of claims 5 to 10, characterized in that it comprises 1 to 20 capping groups.

12. The conjugate according to claim 11, characterized in that the capping group is a straight or branched chain ether or ester group with 1 to 20 carbon atoms.

13. The conjugate according to any of the preceding claims, characterized in that the UV absorbing chromophore is a compound selected from the group consisting of the compounds represented by general formulae (V-A) to (V-E)



wherein

Y is O or NR<sup>3</sup> wherein R<sup>3</sup> is H, C<sub>1</sub>-C<sub>6</sub>-alkyl or C<sub>2</sub>-C<sub>6</sub>-alkenyl;

R<sup>4</sup> and R<sup>5</sup> are independently H, C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>2</sub>-C<sub>6</sub>-alkenyl, CO<sub>2</sub>H, CO<sub>2</sub>-C<sub>1</sub>-C<sub>6</sub>-alkyl, or R<sup>4</sup> and R<sup>5</sup> together with the carbon atom to which they are attached form a 6-camphenyl ring;

R<sup>6</sup> is hydrogen, C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>2</sub>-C<sub>6</sub>-alkenyl or O<sup>-</sup>;

R<sup>7</sup> is H, C<sub>1</sub>-C<sub>6</sub>-alkyl or C<sub>2</sub>-C<sub>6</sub>-alkenyl;

R<sup>8</sup> is H or CO-O<sup>-</sup>;

R<sup>9</sup> and R<sup>10</sup> are independently H or C<sub>1</sub>-C<sub>6</sub>-alkyl;

R<sup>11</sup> and R<sup>12</sup> are independently H, C<sub>1</sub>-C<sub>6</sub>-alkyl, NO<sub>2</sub>, CO<sub>2</sub>-C<sub>1</sub>-C<sub>6</sub>-alkyl or CN;

Z is C<sub>1</sub>-C<sub>6</sub>-alkylene, optionally interrupted by 1 to 3 oxygen atoms;

R<sup>13</sup> and R<sup>14</sup> are independently H, OR<sup>15</sup>, NR<sup>16</sup>R<sup>17</sup> or C<sub>1</sub>-C<sub>6</sub>-alkyl; and

R<sup>15</sup>, R<sup>16</sup> and R<sup>17</sup> are independently selected from H and C<sub>1</sub>-C<sub>6</sub>-alkyl.

14. A composition comprising a conjugate according to any of claims 1 to 13 and a cosmetically acceptable carrier.

15. Composition according to claim 14, additionally comprising one or more UV-screening agents.

16. Use of a conjugate according to any of claims 1 to 13 as UV sunscreen.